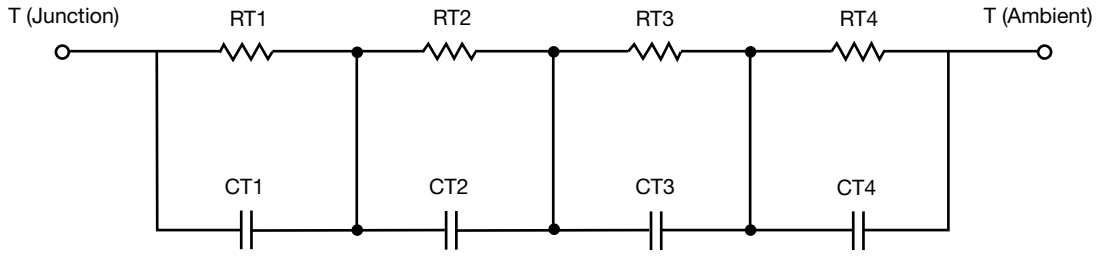
R-C Thermal Model Parameters

DESCRIPTION

The parametric values in the R-C thermal model have been derived using curve-fitting techniques. R-C values for the electrical circuit in the Foster/tank and Cauer/filter configurations are included. When implemented in P-SPICE, these values have matching characteristic curves to the single-pulse transient thermal impedance curves for the MOSFET.

These RC values can be used in the P-SPICE simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in application note AN609, “Thermal Simulation of Power MOSFETs on the P-SPICE Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



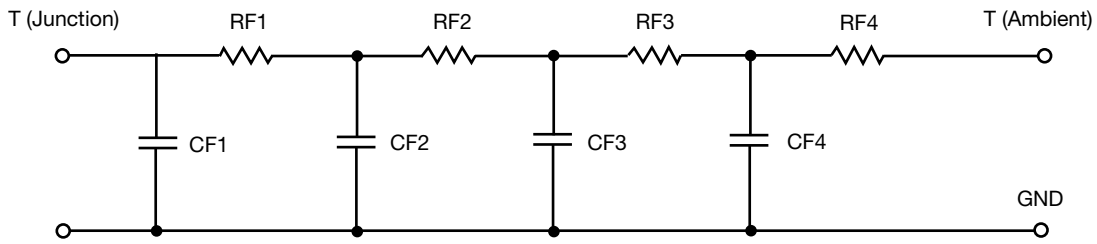
R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	50.0162	N/A	16.1115
RT2	19.6019	N/A	5.8203
RT3	31.7198	N/A	5.4349
RT4	17.4862	N/A	18.6333
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	2.3481	N/A	1.3153m
CT2	230.0534m	N/A	831.7734u
CT3	6.0915m	N/A	78.6534u
CT4	247.6010u	N/A	5.8333m

Note

- n/a indicates not applicable

This document is intended as a SPICE modeling guideline and does not constitute a commercial product datasheet. Designers should refer to the appropriate datasheet of the same number for guaranteed specification limits.

R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	18.5132	N/A	10.4511
RF2	32.2270	N/A	22.6298
RF3	21.0951	N/A	1.7583
RF4	46.9615	N/A	11.1608
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	218.2578u	N/A	88.1241u
CF2	5.6996m	N/A	832.8508u
CF3	201.9339m	N/A	6.5222m
CF4	2.1466	N/A	2.1032m

Note

- n/a indicates not applicable